

**PATENTS** 

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re A	pplication of:	)	i
GARY	L. BOWLIN ET AL.	) ) ) Art Unit: <b>1651</b>	
Serial N	vo. 10/764,691	)	
		) Examiner:	
Filed:	January 26, 2004	)	
		)	
For:	ELECTROPROCESSED FIBRIN-BASED	)	
	MATRICES AND TISSUES	)	

## INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

The citation of information on the attached Form PTO-1449, "Information Disclosure Statement by Applicant" is made pursuant to 37 C.F.R. §§ 1.97 and 1.98. A copy of each cited item is enclosed unless stated otherwise hereinbelow.

Pursuant to 37 C.F.R. §1.98(d), inasmuch as this application relies on prior application Serial No. 09/946,158 filed September 4, 2001, which is a continuation-in-part of U.S. non-provisional patent application serial number 09/654,517 filed September 1, 2000, U.S. non-provisional patent application number 09/714,255, filed November 17, 2000, and U.S. non-provisional patent application number 09/512,081, filed February 24, 2000, which is a continuation-in-part of U.S. non-provisional patent application number 09/386,273, filed

John K. McDonald, Ph.D. - Reg. No. 42,860

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 13, 2004.

Application No. 10/764,691 Information Disclosure Statement Page 2

August 31, 1999 for an earlier filing date under 35 U.S.C. § 120, no copy of any patent, publication or other information previously cited by or submitted to the Office in such prior application is being provided herewith.

The citation of this information does not constitute an admission that any of the materials are available as a reference or of priority, or a waiver of any right applicant may have under applicable statutes, Rules of Practice in patent cases, or otherwise.

Respectfully submitted,

John K. McDonald, Ph.D.

Reg. No. 42,860

KILPATRICK STOCKTON LLP 1100 Peachtree Street Suite 2800 Atlanta, Georgia 30309-4530 (404) 815-6500

Our Docket: 49122-0142 (297109)

PTO/SB/08A (08-00)
Approved for use through 10/31/2002 OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number Under the Raperwork Reduction

Substitute for Form 1449/A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary

of | 13 Sheet

Complete if Known					
Application Number	10/764,691				
Filing Date	January 26, 2004				
First Named Inventor	Gary L. Bowlin				
Group Art Unit	1651				
Examiner Name	Not Yet Assigned				
Attorney Docket Number	49122-0142 (49122-297109))				

				U.S. PATENT DOCUMENT	Date of Publication of	Pages, Columns, Lines, Where
Examiner	Cite		nt nd Code <sup>2</sup> if known)	Name of Patentee or Applicant of Cited Document	Cited Document MM-DD-YYYY	Relevant Passages or Relevant Figures Appear
Initials	No.¹ 1.	US2001/0003148	A1	Coffee	06-07-2001	
	2.	1,975,504	+***	A. Formhals	10-02-1934	
	3.	3,892,648	-	Phillips et al.	07-01-1975	
	<u>3.</u>	4,043,331	+	Martin et al.	08-23-1977	
	5.	4,044,404	+	Martin et al.	08-30-1977	
	6.	4,294,677	+	Sakagami et al.	10-13-1981	
	7.	4,552,707	1	How	11-12-1985	
	8.	4,657,793	+-	Fisher	04-14-1987	
	9.	4,738,740	+	Pinchuk et al.	04-19-1988	
	10.	5,171,505	<del>                                     </del>	Lock	12-15-1992	
	11.	5,252,285		Lock	10-12-1993	
	11.	5,256,418	+-	Kemp et al.	10-26-1993	
	<del></del>	5,292,362		Bass et al.	03-08-1994	
	13.	5,580,859		Felgner et al.	12-03-1996	
	14.	5,655,517		Coffee	08-12-1997	
	15.	5,693,085		Buirge et al.	12-02-1997	
	16.			Bowlin et al.	03-03-1998	
	17.	5,723,324		Coffee	09-29-1998	
	18.	5,813,614		Purchio et al.	05-11-1999	
	19.	5,902,741		Grande et al.	05-25-1999	
	20.	5,906,934		Lee et al.	06-01-1999	
	21.	5,908,777		Turner et al.	06-15-1999	
	22.	5,912,177		Coffee	06-29-1999	
	23.	5,915,377	<del></del>	Whitmore	08-10-1999	
	24.	5,935,437		Tranquillo et al.	09-07-1999	
	25.	5,948,654		Tranquillo et al.	05-02-2000	
	26.	6,057,137		Coffee	05-30-2000	
	27.	6,068,199		Pui et al.	07-25-2000	
	28.	6,093,557		Prior et al.	08-01-2000	
	29.	6,096,309		Nova et al.	08-08-2000	
	30.	6,100,026		Levene et al.	08-15-2000	
	31.	6,103,255		Coffee	08-22-2000	
	32.	6,105,571		Coffee	08-22-2000	
	33.	6,105,877	_	Scardino et al.	08-22-2000	
	34.	6,106,913			08-29-2000	
	35.	6,110,484		Sierra	08-29-2000	
	36.	6,110,590		Zarkoob et al.	09-12-2000	
	37.	6,117,296		Thomson	03-12-2000	1

Examiner	Date	
Signature	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents.

PTO/SB/08A (08-00)
Approved for use through 10/31/2002 OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

t of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Under the Paperwork Reduction
Substitute for Form 1449/A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary

Sheet 2 of 13

Complete if Known					
Application Number 10/764,691					
Filing Date January 26, 2004					
First Named Inventor Gary L. Bowlin					
Group Art Unit	1651				
Examiner Name Not Yet Assigned					
Attorney Docket Number	49122-0142 (49122-297109)				

	U.S. Patent		U.S. PATENT DOCUMENTS  Name of Patentee or Applicant	Date of Publication of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant
aminer Cite	Number	(if known)	of Cited Document	MM-DD-YYYY	Figures Appear
38.	6,121,042		Peterson et al.	09-19-2000	
39.	6,146,892		Ma et al.	11-14-2000	
40.	6,179,872	B1	Bell et al.	01-30-2001	
41.	6,180,605	B1	Chen et al.	01-30-2001	
42.	6,180,606	B1	Chen et al.	01-30-2001	
43.	6,190,893	B1	Shastri et al.	02-20-2001	
44.	6,197,575	B1	Griffith et al.	03-06-2001	
45.	6,245,345	B1	Swanbom et al.	06-12-2001	
46.	6,252,129	B1	Coffee	06-26-2001	
47.	6,254,627	B1	Freidberg	07-03-2001	
48.	6,265,333	B1	Dzenis et al.	07-24-2001	
49.	6,306,424	B1	Vyakarnam et al.	10-23-2001	
50.	6,308,509	B1	Scardino et al.	10-30-2001	
51.	6,309,661	B1	Setterstrom et al.	10-30-2001	
52.	6,318,640	B1	Coffee	11-20-2001	
53.		B1	Pui et al.	06-04-2002	

Examiner	Date	
Signature	Considered	

<sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent document, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language translation is attached.

Approved for use through 10/31/2002 OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number Complete if Known Substitute for Form 1449/A/PTO **Application Number** 10/764,691 January 26, 2004 **Filing Date** INFORMATION DISCLOSURE **First Named Inventor** Gary L. Bowlin STATEMENT BY APPLICANT Group Art Unit 1651 (use as many sheets as necessary **Examiner Name** Not Yet Assigned 49122-0142 (49122-297109) **Attorney Docket Number** 

				FORE	IGN PATENT DOCUMENTS	5		
Examiner Initials	Cite No. <sup>1</sup>	Office <sup>3</sup>	Foreign Patent Docume Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
	54.		RU2031661	C1	Nauchno-proizvodstvennoe predprijatie "Ehkomedservis," Institut Khirurgii im.A.V.Vishnevskogo RAMN	03-27-1995		X
	55.	EP	00/05035	A1	Imperial Chemical Industries Limited, et al.	10-31-1979		
	56.	EP	0266035	A1	Ethicon, Inc., et al.	05-04-1988		
,	57.	GB	1377022		Avicon, Inc.	12-11-1974		
-	58.	GB	2142870		Ethicon, Inc. et al.	12-30-1985		
	59.	GB	2360789	A	Mason Christopher	10-03-2001		
	60.	PCT	WO 01/74431	A2	Electrosols, Ltd.	10-11-2001		
	61.	RU	2031661			03-27-1995	See XP002046663	
	62.	RU	2034534	C1	Kirichenko et al.	05-10-1995		
	63.	wo	00/67694	A1	Electrosols, Ltd.	11-16-2000		
	64.	wo	00/72857	A1	Bristol-Meyers Squibb Company	12-07-2000		
	65.	wo	01/26610	A1	The University of Akron	04-19-2001		
	66.	wo	01/27365	A1	The University of Akron	04-19-2001		
	67.	WO	01/51690	A1	Drexel University and The Trustees of the University of Pennsylvania	07-19-2001		
	68.	WO	91/01695	A1	Ethicon, Inc. et al.	02-21-1991		
	69.	WO	97/13849	A1	The Univ. of Akron	04-17-1997		
	70.	WO	98/03267	A	Electrosols, Inc.	01-29-1998		1
	71.	WO	98/56894	A1	Regents of the Univ. of Minn.	12-17-1998		

The PTO dld not receive the following listed Item(s) Reference No. 54-95; 97; 99-108, 110; 112-118; 120-125; 127-129; 131-179

	 · y	
	l .	
	1	
Examiner	D-4-	
	Date	
Signature	Compidence	
Jugitature	 Considered	

Sheet | 3

of | 13

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4For Japanese patent document, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. 6Applicant is to place a check mark here if English language translation is attached.

	<u> </u>			Complete if Known		
Substitute for Form 1449/A/PTO  INFORMATION DISCLOSURE				Application Number	10/764,691	
				Filing Date	January 26, 2004	
				First Named Inventor	Gary L. Bowlin	
	STATEN	IENT I	BY APPLICANT	Group Art Unit	1651	
(use as many sheets as necessary		Examiner Name	Not Yet Assigned			
Sheet	4	of	13	Attorney Docket Number	49122-0142 (49122-297109)	

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T²
	72.	"PlasmaSeal's Autologous Plasma Concentrate: Plasma Concentrate Sealant,"	
		http://www.plasmaseal.com/intro.htm., June 14, 2000, pp. 1-5.	
	73.	Abstract of RU 2034534, Kirichenko, et al. Derwent World Patents Inc., Dialog File No. 351 Accession No.	
		10521633	
	74.	Abstract of RU2031661, Nauchno-proizvodstvennoe predprijatie "Ehkomedservis," Institut Khirurgii	
		im.A.V.Vishnevskogo RAMN, Derwent, XP 00204663	
	75.	AGRAWAL, C.M. et al., "Technique to Control pH in Vicinity of Biodegrading PLA-PGA Implants", J.	
		Biomed. Mater Res., 1997, pp. 105-114, Vol. 38.	
	76.	AKINS, R.E. et al., "Neonatal Rat Heart Cells Cultured in Simulated Microgravity", In Vitro Cell. Dev. Biol.	
		- Animal, 1997, pp. 337-343, Vol. 33.	
	77.	AMSDEN et al., "An examination of factors affecting the size, distribution and release characteristics of	
		polymer microbeads made using electrostatics", Journal of Controlled Release, 1997, pp. 183-196, vol. 43.	
	78.	BAKER, T.L. et al., "Three-Dimensional Culture of Bovine Chondrocytes in Rotating-Wall Vessels", In	
		Vitro Cell. Dev. Biol. – Animal, 1997, pp. 358-365, Vol. 33.	1
10.0	79.	BAROFFIO, A. et al., "Identification of self-renewing myoblasts in the progeny of single human muscle	
		satellite cells", Differentiation, 1996, pp. 47-57, Vol. 60.	
	80.	BECK, L., Jr. et al., "Vascular development: cellular and molecular regulation", J. FASEB, 1997, pp. 365-	
		373, Vol. 11.	
	81.	BOHR, D.F. et al., "The Cardiovascular System", Handbook of Physiology, American Physiological Society,	
		1980, pp. 1-31, Vol. II, sec. 2.	
	82.	BOLAND et al., "Electrospinning of Tissue Engineering Scaffolds," Paper Presented at American Chemical	
		Society Div. Of Polymeric Materials: Science and Engineering, Presented August 26, 2001, Chicago, IL,	
		Publication approximately July 2001.	
	83.	BOLAND et al., "Tailoring a Poly (Glycolic Acid) Tissue Engineering Scaffold by Utilizing Electrostatic	
		Processing," Abstract of Presentation at the 4th International Symposium on Frontiers in Biomedical	
		Polymers, Williamsburg, VA, May 16, 2001.	
	l .		

Examiner		Date	
Signature	·	Considered	
Signature		Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

	011001 1110 1 0	<u> </u>	Reduction Act of 1996, no persone die 19	Complete if Known		
Substitute f	or Form 1449/A/PTO	)		Application Number	10/764,691	
INCORMATION DIGGLOCUDE				Filing Date	January 26, 2004	
INFORMATION DISCLOSURE				First Named Inventor	Gary L. Bowlin	
,	STATEMENT BY APPLICANT			Group Art Unit	1651	
(use as many sheets as necessary		Examiner Name	Not Yet Assigned			
Sheet	5	of	13	Attorney Docket Number	49122-0142 (49122-297109)	

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	84.	BOWLIN et al., "Electric Field-Mediated Processing of Biomaterials: Toward Nanostructured Biomimetic	
		Systems," Abstract of Presentation at SPIE Annual Meeting, Newport Beach, CA, presented March 8, 2001.	
	85.	BOWLIN et al., "Electrospinning of Biomaterials," Abstract for Presentation at the Second Conference on	
		the Development of Technology in Medicine for Virginia, at the University of Virginia, Presented	
		November 2, 1999.	
	86.	BOWLIN et al., "Electrospinning of Biomaterials," Paper for Presentation at Fiber Society Spring 2001	
		Meeting, Raleigh, NC, Presented May 23, 2001.	
	87.	BOWLIN et al., "Electrospinning of Biomaterials," Paper for Presentation at Fiber Society Spring 2001	
		Meeting, Raleigh, NC, Presented May 23, 2001.	
	88.	BOWLIN, G., "Biomimicking Small Caliber Vascular Construct Engineering," Abstract for Presentation at	
		2001 Whitaker Foundation Biomedical Engineering Conference, La Jolla, CA, Presented August 9, 2001.	
-	89.	BOWLIN, G., "The New 'Spin' on Tissue Engineering Scaffolds," Abstract for Keynote Address at the 4th	
		International Symposium on frontiers in Biomedical Polymers, Williamsburg, VA, Presented May 17, 2001.	
	90.	BUCHKO, C.J. et al., "Processing and Microstructural Characterization of Porous Biocompatible Protein	
		Polymer Thin Films", Polymer, 1999, pp. 7397-7407, Vol. 40.	
	91.	BUSH, R.L. et al., "Regulation of new blood vessel growth into ischemic skeletal muscle", Journ. of	
		Vascular Surgery, 1998, pp. 919-928, Vol. 28.	
	92.	CAVALLARO, J.F. et al., "Collagen Fabrics as Biomaterials", Biotechnology and Bioengineering, 1994, pp.	
		781-791, Vol. 43.	
	93.	CHEN, Da-Ren et al., "Electrospraying of Conducting Liquids for Monodisperse Aerosol Generation in the	
		4nm to 1.8μm Diameter Range", 1995, pp. 963-977. J. Aerosol Science, 1995, pp. 963-977, Vol. 26.	
	94.	CHEN, Da-Ren et al., "Experimental Investigation of Scaling Laws for Electrospraying: Dielectric Constant	
		Effect", Aerosol Science and Technology, 1997, pp. 367-380, Vol. 27.	
	95.	CHEN, H.H., et al., "The Use of Collagen Polymer Tube and Fibrin Clot in Peripheral Nerve Repair," Proc.	
		National Science Council (ROC), 1994, pp. 58-63, vol. 18, no.2.	
l	1		

Examiner		Date	
Signature	l -	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

				Complete if Known		
Substitute f	or Form 1449/A/PTO			Application Number	10/764,691	
			I DICCI OCUDE	Filing Date	January 26, 2004	
_			N DISCLOSURE	First Named Inventor	Gary L. Bowlin	
STATEMENT BY APPLICANT (use as many sheets as necessary				Group Art Unit	1651	
				Examiner Name	Not Yet Assigned	
Sheet	6	of	13	Attorney Docket Number	49122-0142 (49122-297109)	

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	96.	COHN, Daniel et al., "Introducing a selectively biodegradable filament would arterial prosthesis: A short-	,
		term implantation study", Journ. of Biomed. Materials Res., 1992, pp. 1185-1204, Vol. 26	
	97.	CONNOLD, A.L. et al., "Survival of embryonic cardiac myocytes transplanted into host rat soleus muscle",	
		Journ. of Muscle Res. and Cell Motility, 1995, pp. 481-489, Vol. 16.	
	98.	DEITZEL, J.M. et al., "Generation of Polymer Nanofibers Through Electrospinning", Army Research	
		Laboratory, 1999, pp. 1-33, ARL-TR-1989.	/
	99.	DOSHI, J. et al., "Electrospinning Process and Applications of Electrospun Fibers", Journ. of Electrostatics,	
		1995, pp. 151-160, Vol. 35.	
	100.	DRASLER, W. J. et al., "A Spun Elastomeric Graft for Dialysis Access", ASAIO Journal, 1993, pp. 114-	
		119, Vol. 39.	
	101.	EKOMEDSERVIS: "WPI World Patent Information Derwent, Derwent, GB', WPI World Patent Information	
		Derwent, Derwnet, GB, Vol. 44, Nr. 95, London, GB, (XP002046663)	
	102.	FERBER, D., "Lab-Grown Organs Begin to Take Shape", Science, 1999, pp. 422-424, Vol. 284.	
	103.	FREED, L.E. et al., "Microgravity Tissue Engineering", In Viro Cell. Dev. Biol Animal, 1997, pp. 381-	
		385, Vol. 33.	
	104.	FREYSSINET, J-M, et al., "Fibrinogen and fibrin in strong magnetic fields. Complementary results and	
		discussion," Biochimie, 1984, pp. 81-85, vol. 66.	
	105.	GERSHON, B. et al., "Utilization of composite laminate theory in the design of synthetic soft tissues for	
		biomedical prostheses", Biomaterials, Casali Inst. of Applied Chemistry, Grad. School of Applied Science	
		and Tech., The Hebrew Univ. of Jerusalem, Oct. 1990, pp.548-552, vol. 11, No. 8.	
	106.	GIBSON, P.W. et al., "Electrospun Fiber Mats: Transport Properties", U.S. Army Natick Research,	
		Development and Engineering Center, AICHE Journal, 1999, pp. 190, Vol. 45.	
	107.	GOJO, S. et al., "Transplantation of Genetically Marked Cardiac Muscle Cells", Journ. of Thorac.	
		Cardiovasc. Surg., 1997, pp. 10-18, Vol. 113.	
	108.	GORODETSKY, R., "Fibrin Microbeads (FMB) as biodegradable microcarriers for cultured cells and wound	1
		healing," ABSTRACT, http://www.Hadassah.org.il/hadasit/patent17.htm, June 14, 2000, pp.1.	
	L	<u> </u>	J

Examiner	Date	
Signature		
Olghalaic	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

				Complete if Known		
Substitute f	or Form 1449	A/PTO		Application Number	10/764,691	
	NICOD		U DIGGL OCUDE	Filing Date	January 26, 2004	
_		<del>-</del>	N DISCLOSURE	First Named Inventor	Gary L. Bowlin	
STATEMENT BY APPLICANT				Group Art Unit	1651	
		(use as many sl	heets as necessary	Examiner Name	Not Yet Assigned	
Sheet	7	of	13	Attorney Docket Number	49122-0142 (49122-297109)	

Т		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the	Ι
Examiner Initials	Cite No. <sup>1</sup>	item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	109.	GOSPODAROWICZ, D., et al., "The Extracellular Matrix and the Control of Proliferation of Vascular	
		Endothelial and Vascular Smooth Muscle Cells," J. Supramolecular Structure, 1980, pp. 339-372, vol. 13.	
	110.	HARRIS, A.K., et al., "Fibroblast traction as a mechanism for collagen morphogenesis", Nature, 1981, pp.	
ļ		249-251, Vol. 290.	
	111.	HASEGAWA, M. et al., "Mechanical Properties of Synthethic Arterial Grafts", J. Biomechanics, 1979, pp.	
		509-517, Vol. 12	/
	112.	HERBERT, C.B., et al., "Effects of fibrin micromorphology on neurite growth from dorsal root ganglia	
		cultured in three-dimensional fibrin gels," J. Biomed Mater Res., 1998, pp. 551-559, vol. 40.	
	113.	HIRAI, J. et al., "Highly Oriented, Tubular Hybrid Vascular Tissue for a Low Pressure Circulatory System",	
		ASAIO Journal, 1994, pp. M383-M388, Vol. 40.	
	114.	HOPKINS, S.P. et al., "Controlled delivery of vascular endothelial growth factor promotes	
		neovascularization and maintains limb function in a rabbit model of ischemia", Journ. Vascular Surgery,	
		1998, pp. 886-895, Vol. 27, no. 5.	
	115.	HOW, T.V. et al., "Engineering design of vascular prostheses", Proc Instn Mech Engrs, 1992, pp. 61-71, Vol.	
		206.	
	116.	HUANG, D. et al., "Mechanisms and Dynamics of Mechanical Strengthening in Ligament-Equivalent	
		Fibroblast-Populated Collagen Matrices", Annals of Biomedical Engineering, 1993, pp. 289-305, Vol. 21.	·
	117.	HUANG, L. et al., "Generation of Synthetic Elastin-Mimetic Small Diameter Fibers and Fiber Networks",	
		Macromolecules, 2000, pp. 2989-2997, Vol. 33.	
	118.	HUANG, L. et al., "High-Resolution Analysis of Engineered Type I Collagen Nanofibers by Electron	1
		Microscopy," Scanning, 2001, pp.372-375, vol. 23.	
	119.	KANDA, K., et al., "Mechanical Stress-Induced Orientation and Ultrastructural Change of Smooth Muscle	
		Cells Cultured in Three-Dimensional Collagen Lattices", Cell Transplantation, 1994, pp. 481-492, Vol. 3.	/
	120.	KATO, Y.P. et al., "Formation of continuous collagen fibres: evaluation of biocompatibility and mechanical	1
		properties", Biomaterials, 1990, pp. 169-175, Vol. 11.	

Examiner	Date
Signature	Considered

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

PTO/SB/08A (08-00)
Approved for use through 10/31/2002 OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE to a collection of information unless it contains a valid OMB control number

Ungei	Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information diffes it contains a valid CMB control name				
		Complete if Known			
Substitute for Form 1449	B/A/PTO	Application Number	10/764,691		
INFOR	MATION DISCLOSUDE	Filing Date	January 26, 2004		
	MATION DISCLOSURE	First Named Inventor	Gary L. Bowlin		
STATE	EMENT BY APPLICANT	Group Art Unit	1651		
	(use as many sheets as necessary	Examiner Name	Not Yet Assigned		
Sheet 8	of 13	Attorney Docket Number	49122-0142 (49122-297109)		

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T²
	121.	KATO, Y.P. et al., "Mechanical properties of collagen fibres: a comparison of reconstituted and rat tail	
		tendon fibres" Biomaterials, 1989, pp. 38-42, Vol. 10.	
	122.	KIM, B-S et al., "Engineering smooth muscle tissue with a predefined structure", J. Biomed. Mater Res.,	
		1998, pp. 322-332, Vol. 41.	
	123.	KIM, B-S et al., "Optimizing Seeding and Culture Methods to Engineer Smooth Muscle Tissue on	
		Biodegradable Polymer Matrices", Biotechnology Bioengineering, 1998, pp. 46-54, Vol. 57.	
	124.	KOH, G.Y. et al., "Long-term survival of AT-1 cardiomyocyte grafts in syngeneic myocardium", Amer.	
į		Journ. Physiol., 1993. pp. H1727-H1733, Vol. 264.	
	125.	LI, R-K et al., "In Vivo Survival and Function of Transplanted Rat Cardiomyocytes", Circulation Research,	
		1996, pp. 283-288, Vol. 78, No. 2.	
	126.	MANDANAS, R.A., "Formation of fibrin clots in cryopreserved stem cell bags during thawing procedure:	/
		lack of impact on engraftment in autologous stem cell transplantation," Bone Marrow Transplantation, 1999,	/
		pp. 303-304, vol. 23.	
	127.	MATTHEWS et al., "Electroprocessing: Fabrication of Novel Biocompatible Materials," Abstract for	
		Presentation at the 4th International Symposium on Frontiers in Biomedical Polymers, Williamsburg, VA,	
		Presented May 16, 2001.	
	128.	MATTHEWS et al., "Vascular Engineering Utilizing Electrospun Collagen," Abstract for Presentation at	
		Engineering Tissues, Hilton Head Island, SC, February 24, 2001.	
	129.	MOLNAR, G. et al., "Skeletal Muscle Satellite Cells Cultured in Simulated Microgravity", In Vitro Cell.	
		Dev. Biol. – Animal, 1997, pp. 386-391, Vol. 33.	
	130.	MOROZOV, V.N. et al., "Atomic force microscopy of structures produced by electrospraying polymer	1
		solutions", International Journal of Mass Spectrometry, 1998, pp. 143-159, Vol. 178.	
	131.	MOROZOV, V.N. et al., "Electrospray Deposition as a Method to Fabricate Functionally Active Protein	
		Films", Analytical Chemistry, April 1, 1999, pp. 1415-1420, Vol. 71, No. 7.	
	132.	MURRY, C.E. et al., "Skeletal Myoblast Transplantation for Repair of Myocardial Necrosis", Journ. Clin.	
		Invest., 1996, pp. 2512-2523, Vol. 98, no. 11.	

Examiner	Date	
Signature	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

Ondor tho F	ролион		Cor	nplete if Known
or Form 1449/A/PT	0		Application Number	10/764,691
			Filing Date	January 26, 2004
NFORMA	TIOI	N DISCLOSURE	First Named Inventor	Gary L. Bowlin
STATEME	ENT	BY APPLICANT	Group Art Unit	1651
• • • • • • • • • • • • • • • • • • • •			Examiner Name	Not Yet Assigned
q	of	13	Attorney Docket Number	49122-0142 (49122-297109)
İ	OF FORM A NFORMA STATEME (use a	OF FORMATION NFORMATION STATEMENT (use as many si	NFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary	NFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary  Application Number Filing Date First Named Inventor Group Art Unit Examiner Name

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	133.	NIKLASON, L.E. et al., "Functional Arteries Grown in Vitro", Science, 1999, pp. 489-493, Vol. 284.	
	134.	OKANO et al., "Hybrid Muscular Tissues: Preparation of Skeletal Muscle Cell-Incorporated Collagen Gels,"	
		Cell Transplantation, 1997, pp. 109-118, Vol. 6, No. 2.	
	135.	OKANO, T. et al., "Tissue Engineered Skeletal Muscle: Preparation of Highly Dense, Highly Oriented	
		Hybrid Muscular Tissue", Cell Transplantation, 1998, pp. 71-82, Vol. 7, No. 1.	
_	136.	OKANO, T. et al., "Tissue Engineering of Skeletal Muscle, Highly Dense, Highly Oriented Hybrid Muscular	
		Tissues Biomimicking Native Tissues", ASAIO Journal, 1997, pp. M749-M753, Vol. 43.	
	137.	PAWLOWSKI et al., "Electrospinning a Biodegradable Vascular Tissue Engineering Scaffold," Abstract for	
!		Presentation at the 4th International Symposium on Frontiers in Biomedical Polymers, Williamsburg, VA,	
		Presented May 16, 2001.	
_	138.	PELLEGRINI, G., et al., "The Control of Epidermal Stem Cells (Holoclones) in the Treatment of Massive	
		Full-Thickness Burns with Autologous Keratinocytes Cultured on Fibrin," Transplantation, September 27,	
,		1999, pp. 868-879, vol. 68, no. 6.	
	139.	PINS, G.D. et al., "Effects of Static Axial Strain on the Tensile Properties and Failure Mechanisms of Self-	
		Assembled Collagen Fibers", J. Appl. Polym Sci., 1997, pp. 1429-1440, Vol. 63.	
	140.	PINS, G.D. et al., "Self-Assembly of Collagen Fibers Influence of Fibrillar Alignment and Decorin on	
		Mechanical Properties", Biophysical Journal, 1997, pp. 2164-2172, Vol. 73.	
	141.	RENEKER, D.H. et al., "Nanometre diameter fibres of polymer, produced by electrospinning",	
		Nanotechnology, 1996, pp. 216-223, Vol. 7.	
	142.	RODEO, S.A., "New and Emerging Treatments for Cartilage and Meniscus Injuries," MD Vista Journal of	
		Medicine, 2000, pp. 1-4.	
	143.	ROHR, S. et al., "Patterned Growth of Neonatal Rat Heart Cells in Culture", Circulation Research, 1991, pp.	
		114-130, Vol. 68.	
	144.	SAMUEL, J.L. et al., "Mechanically Induced Orientation of Adult Rat Cardiac Myocytes In Vitro", In Vitro	
		Cell. Dev. Biol., 1990, pp. 905-914, Vol. 26.	

Examiner	Date	
Signature	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

Complete if Known 10/764,691 **Application Number** Substitute for Form 1449/A/PTO January 26, 2004 Filing Date INFORMATION DISCLOSURE Gary L. Bowlin First Named Inventor STATEMENT BY APPLICANT 1651 Group Art Unit Not Yet Assigned **Examiner Name** (use as many sheets as necessary 49122-0142 (49122-297109) Attorney Docket Number of 13 Sheet 10

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	145.	SCHREUDER-GIBSON, H., "Electrospinning Polymer Fibers", www-	
		sscom.army.mil/warrior/97/apr/yarn.htm, U.S. Army Natick Research, Development & Engineering Center,	
i		1997.	
	146.	SELIKTAR, D. et al., "Dynamic Mechanical Conditioning of Collagen-Gel Blood Vessel Constructs Induces	
		Remodeling In Vitro", Annals of Biomedical Engineering, 2000, pp. 351-362, Vol. 28.	
	147.	SHANSKY, J. et al., "A Simplified Method for Tissue Engineering Skeletal Muscle Organoids In Vitro", In	ŀ
		Vitro Cell. Dev. Biol.—Animal, 1997, pp. 659-661, Vol. 33.	
	148.	SHINOKA, T. et al., "Creation of Viable Pulmonary Artery Autografts Through Tissue Engineering", Journ.	
		Thorac. Cardiovasc. Surg., 1998, pp. 536-546, Vol. 115.	
	149.	SIMPSON, D.G. et al., "Modulation of Cardiac Myocyte Phenotype In Vitro by the Composition and	
		Orientation of the Extracellular Matrix", Journal of Cellular Physiology, 1994, pp. 89-105, Vol. 161.	
	150.	SOONPAA, M.H. et al., "Formation of Nascent Intercalated Disks Between Grafted Fetal Cardiomyocytes	
		and Host Myocardium", Science, 1994, pp. 98-101, Vol. 264.	
	151.	STITZEL et al., "Electrospraying and Electrospinning of Polymers for Biomedical Applications. Poly	
		(lactic-co-glycolic acid) and Poly (ethylene-co-vinylacetate)." Proc. 32nd Society for the Advancement of	
		Material and Process Engineering (SAMPE) Meeting, Boston, MA, Presented Nov. 7, 2000.	
	152.	STITZEL, J., "Mechanical Design and Development of a Biomimicking, Biodegradable Vascular Graft,	
		Thesis Submitted at Virginia Commonwealth University, Richmond, VA, August 2000, Indexed February 9,	
		2001.	_
	153.	STITZEL, J.D., et al., "Arterial Smooth Muscle Cell Proliferation on a Novel Biomimicking, Biodegradable	
		Vascular Graft Scaffold," J. Biomaterials Applications, 2001, pp. 1-12, vol. 15.	$\perp$
<u> </u>	154.		
		Skeletal Muscle," Poster Presentation at Engineering Tissues, Hilton Head Island, SC, February 25, 2001.	
		(Abstracts available February 21, 2001.)	$\perp$
	155.	TIOLLIER, J. et al., "Fibroblast Behavior on Gels of Type I, III, and IV Human Placental Collagens",	
		Experimental Cell Research, 1990, pp. 95-104, Vol. 191.	

Examin	er	Date	
Signatu		Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

Complete if Known **Application Number** 10/764,691 Substitute for Form 1449/A/PTO January 26, 2004 Filing Date INFORMATION DISCLOSURE Gary L. Bowlin **First Named Inventor** STATEMENT BY APPLICANT Group Art Unit 1651 (use as many sheets as necessary Not Yet Assigned **Examiner Name** 49122-0142 (49122-297109) Attorney Docket Number 11 of | 13 Sheet

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS  Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the				
xaminer Initials	Cite No.1	item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s),	T <sup>2</sup>			
	156.	VAN WACHEM, P.B. et al., "Myoblast seeding in a collagen matrix evaluated in vitro", Journ. of Biomed.				
		Materials Res., 1996, pp. 353-360, Vol. 30.				
	157.	VANDENBURGH, H. et al., "Attenuation of Skeletal Muscle Wasting with Recombinant Human Growth				
ļ		Hormone Secreted from a Tissue-Engineered Bioartificial Muscle", Human Gene Therapy, 1998, pp. 2555-				
		2564, Vol. 9.	_			
	158.	VANDENBURGH, H., "Cell Shape and Growth Regulation in Skeletal Muscle: Exogenous Versus				
		Endogenous Factors", Journ. of Cellular Physiology, 1983, pp. 363-371, Vol. 116.				
	159.	VANDENBURGH, H.H. et al., "Mechanically Induced Alterations in Cultured Skeletal Muscle Growth", J.				
		Biomechanics, 1991, pp. 91-99, Vol. 24.	<u> </u>			
	160.	VANDENBURGH, H.H. et al., "Skeletal muscle growth is stimulated by intermittent stretch-relaxation in				
		tissue culture", American Journal of Physiology, 1989, pp. C674-C682, Vol. 256.				
•	161.	VANDENBURGH, H.H., "Mechanical forces and their second messengers in stimulating cell growth in				
		vitro", American Journal of Physiology, 1992, pp. R350-R355, Vol. 262.				
	162.	VANDENBURGH, H.H., "Mechanical stimulation of organogenic cardiomyocyte growth in vitro", Am. J.	ı			
		Physiol., 1996, pp. C1284-C1292, Vol. 270.	_			
	163.	VENTURA, R., et al., "Experimental Suture of the Peripheral Nerves with 'Fibrin Glue'," Ital. J. Orthop				
		Traumatol, 1980, pp. 407-414, vol. 6 no. 3.				
-	164.	WARNER, S.B., et al., "A Fundamental Investigation of the Formation and Properties of Electrospun				
		Fibers," National Textile Center Annual Report, November 1999, pp. 1-10.	_			
	165.	WATANABE, E. et al., "Cardiomyocyte Transplantation in a Porcine Myocardial Infarction Model", Cell				
		Transplantation, 1998, pp. 239-246, Vol. 7, no. 3.				
	166.	WEISS, S.W. et al., "Revascularization of Skeletal Muscle Transplanted into the Hamster Cheek Pouch:				
		Electron Microscopy", Microvascular Research, 1983, pp. 65-73, Vol. 26.				
	167.					
		Regeneration Within a Silicone Chamber," Neurochemical Research, 1987, pp. 851-860, vol. 12, no. 10.				

Examiner Date Signature Considered			
Signature	Examiner		
Signature	Signature	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

	Onder the Fa	sperwork i	Reduction Act of 1999, the personne over	Con	nplete if Known
Substitute fo	or Form 1449/A/PT	0		Application Number	10/764,691
				Filing Date	January 26, 2004
	NFORMA	<b>NOIT</b>	N DISCLOSURE	First Named Inventor	Gary L. Bowlin
9	STATEME	ENT I	BY APPLICANT	Group Art Unit	1651
•			neets as necessary	Examiner Name	Not Yet Assigned
Sheet	12	of		Attorney Docket Number	49122-0142 (49122-297109)
SHEEL	14	1 01			

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the				
xaminer Initials	Cite No. <sup>1</sup>	item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s),	T <sup>2</sup>			
	168.	WNEK, G., "Production of Microfibers by Electrospinning," Abstract for Presentation at Phillip Morris				
		Technical Center, Richmond, VA, Presented February 13, 2001.				
	169.	WNEK, G., "Thinking Small About Old Polymers at the Medicine/Engineering Interface," Abstract for				
		Presentation at Program in Polymer Science and Technology Seminar Series, Presented at Massachusetts				
i	 	Institute of Technology, Cambridge, MA, May 16, 2001.				
	170.	WNEK, G., "Thinking Small About Old Polymers at the Medicine/Engineering Interface," Abstract for				
	i	Presentation at Chemical Engineering Seminar, Worcester Polytechnic Institute, Worcester, MA, Presented				
	1	October 18, 2001.				
	171.	WNEK, G., "Electroactive Materials and Systems: Applications to Fuel Cells and Biosensors," Abstract for				
	i	Presentation of Materials Science and Engineering Seminar, Virginia Polytechnic Institute and State				
		University, Blacksburg, VA, Presented October 22, 1999.				
		www.eng.vt.edu/eng/materials/seminars/fall99/wnek.html.				
	172.	WNEK, G., "Electrospinning of Biomaterials," Abstract of Presentation at University of Massachusetts				
	1	Lowell Memorial Service and Technical Symposium Honoring Sukant K. Tripathy, Presented in Lowell,				
		MA, February 16, 2001.				
	173.	WNEK, G., "Electroactive Materials and Systems: Applications to Fuel Cells and Biosensors", Abstract for				
		Presentation at Molecular Geodesics, Inc., October 13 or 14, 1999.				
	174.	WNEK, G.E., Bowlin, G.L., and Simpson, D.G., "Electrospraying and Electrospinning of Polymers for				
		Tissue Engineering/Biomaterials Applications." Abstract for Presentation at Poly Millennial 2000 an				
		International Symposium by the Division of Polymer Chemistry/American Chemical Society, Hawaii,				
		Presented December 10, 2000.				
	175.	WONG, W. H. et al., "Synthesis and Properties of Biodegradable Polymers Used as Synthetic Matrices for				
		Tissue Engineering", Synthetic Biodegradable Polymer Scaffolds, 1997, pp. 51-82, Chp. 4.				
	176.	YE, QING, et al., "Fibrin gel as a three dimensional matrix in cardiovascular tissue engineering," European				
		J. Cardio-thoracic Surgery, 2000, pp. 587-591, vol. 17.				

Examiner	Date	
Signature	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.

	Onder ti	ie Faperwork Neddesign Act of 1000, he porcent are	Cor	nplete if Known
Substitute	for Form 1449/	VPTO	Application Number	10/764,691
			Filing Date	January 26, 2004
		MATION DISCLOSURE	First Named Inventor	Gary L. Bowlin
	STATE	MENT BY APPLICANT	Group Art Unit	1651
		ise as many sheets as necessary	Examiner Name	Not Yet Assigned
Sheet	13	of   13	Attorney Docket Number	49122-0142 (49122-297109)

		OTHER INFORMATION - NON PATENT LITERATURE DOCUMENTS	
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	177.	YEAGER, A. et al., "New Graft Materials and Current Approaches to an Acceptable Small Diameter Vascular Graft", ASAIO Transactions, 1988, pp. 88-94, Vol. 34.	
	178.	ZENG, L., et al., "Fibrin Sealant Matrix Supports Outgrowth of Peripheral Sensory Axons," Scand J. Plast. Reconstr. Hand Surg., 1995, pp. 199-204, vol. 29.	
	179.	ZÜND, G. et al., "Tissue engineering: A new approach in cardiovascular surgery; Seeding of human fibroblasts followed by human endothelial cells on resorbable mesh," European Journal of Cardio-thoracic Surgery, 1998, pp.160-164, vol. 13.	

		,
Examiner	Date	
Signature	Considered	

<sup>&</sup>lt;sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language translation is attached.